USAF Training Systems Acquisition II (TSAII)

Subcontract Management Plan

Revision (N/A)
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1.0 SUBCONTRACT MANAGEMENT PLAN FOR TSA II

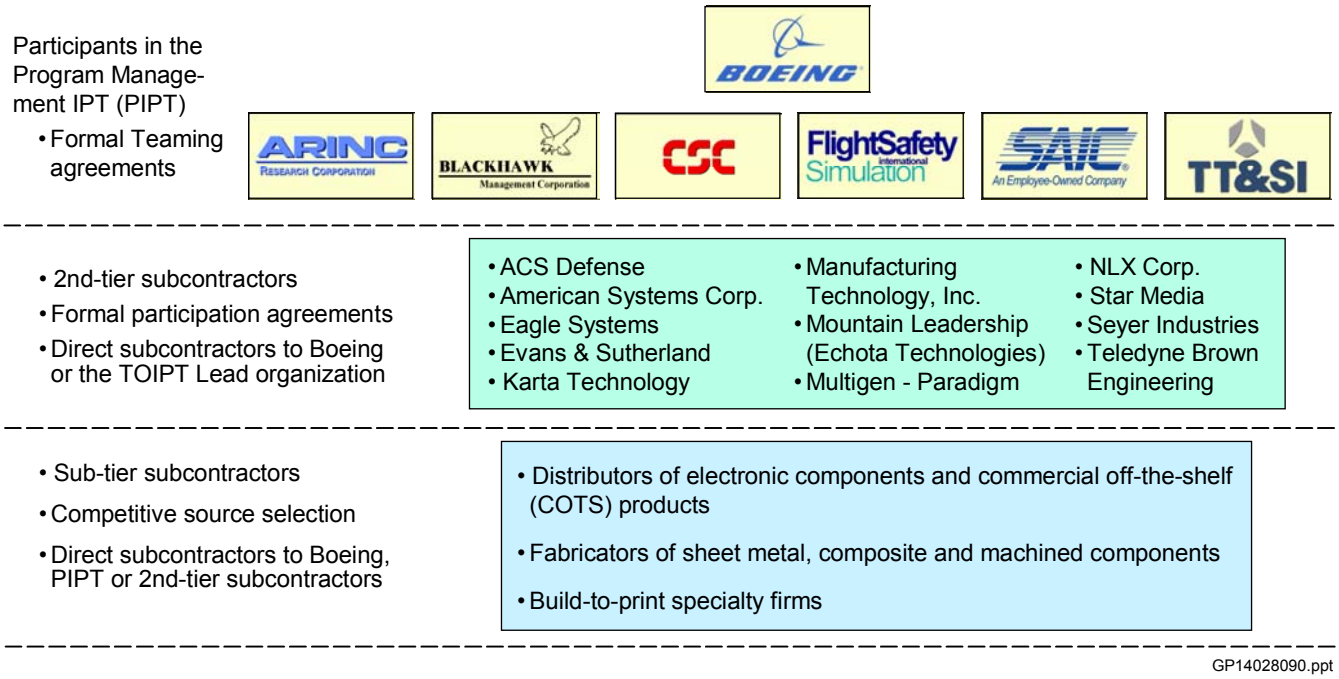
This plan provides strategic and operational direction for TSA II with respect to subcontractor selection, coordination, integration, and control for all program and task order phases, from development through production, deployment, and sustainment.

The Subcontract Management Plan (SMP) addresses Integrated Product Team organization and responsibilities with respect to subcontractor selection, coordination, integration and control; subcontractor inclusion on the IPT; subcontractor management procedures, processes and tools; subcontractor performance measurement; subcontractor communication and status activities; subcontractor Integrated Master Plans and Schedules; Source Selection for the principle subcontractors (Teammates) and the second tier suppliers; and how processes and "Best Practices" are disseminated through the TSA II supply chain. This plan addresses the seven specific items raised in RFP Section L, Subfactor 1.4 through the following descriptions and evidence provides of Boeing's successful application of its Subcontractor Management processes.

1.1 The Boeing Team Strategy

The Boeing TSA II subcontract management strategy is based on the hierarchical arrangement of subcontractor teammates that is described in Figure 1.1-1 below.

Figure 1.1-1. The Boeing TSA II Subcontractor Relationships

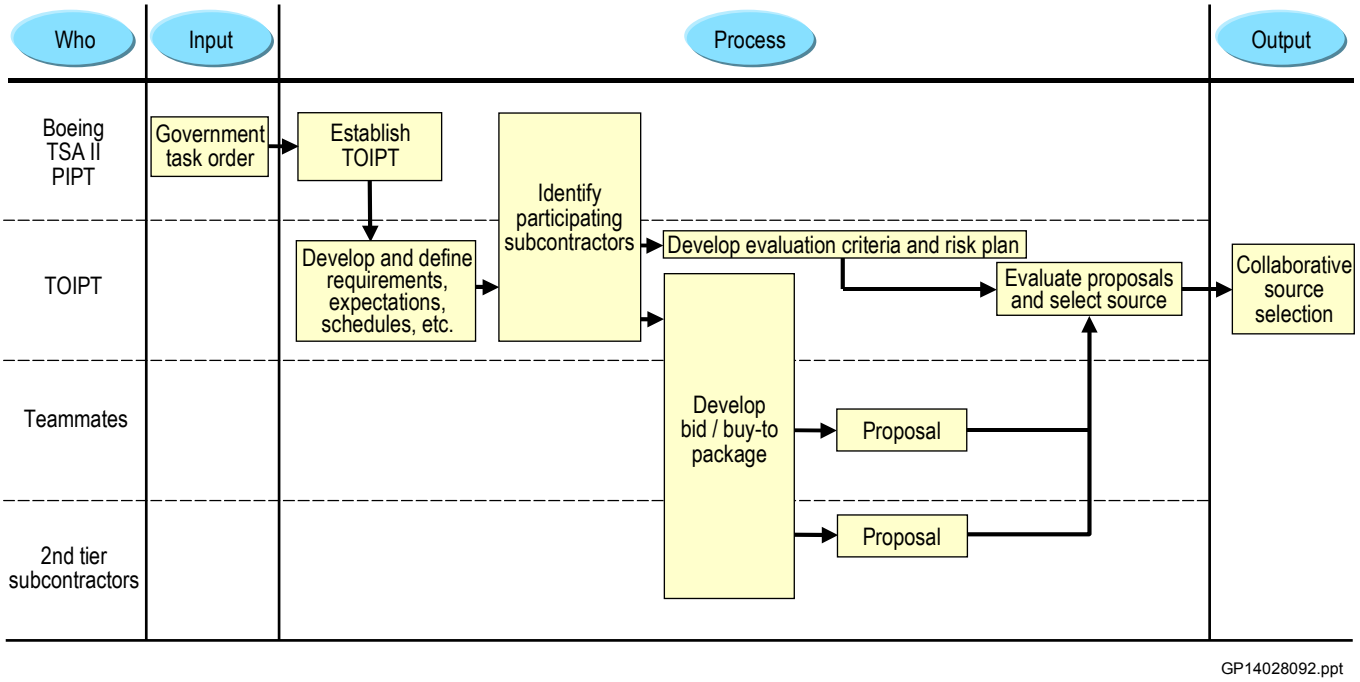


The Boeing Team is comprised of Boeing and the six subcontractor teammates who will participate in the TSA II Program Management Integrated Product Team (PIPT). Our Teammates have been pre-selected and have proprietary information agreements and memorandums of agreement in place to assure full participation in program development and execution. It is expected that the Teammates will lead some Task Order IPTs in order to assure the best value capability for meeting or exceeding the Task Order requirements. The second tier of subcontractors has been identified and participation agreements are in place to facilitate their rapid inclusion on TSA II Task Orders. The expectation is that these subcontractors will work directly for the Task Order Management IPT (TOIPT) lead, whether it is Boeing or one of the Teammates. The sub-tier subcontractors are those companies who are supplying components and services that are easily substitutable or for which there are many competing suppliers. An example of a sub-tier subcontractor would be a distributor of commercial electronic components or a supplier of simple machined parts. This stratification of the TSA II subcontractor base into Teammates, second tier subcontractors, and sub-tier subcontractors is important because it prescribes the particular subcontract management methodologies, processes, or procedures used to manage the TSA II program.

1.2 Selecting, Coordinating With, Integrating and Controlling Subcontractors and Suppliers

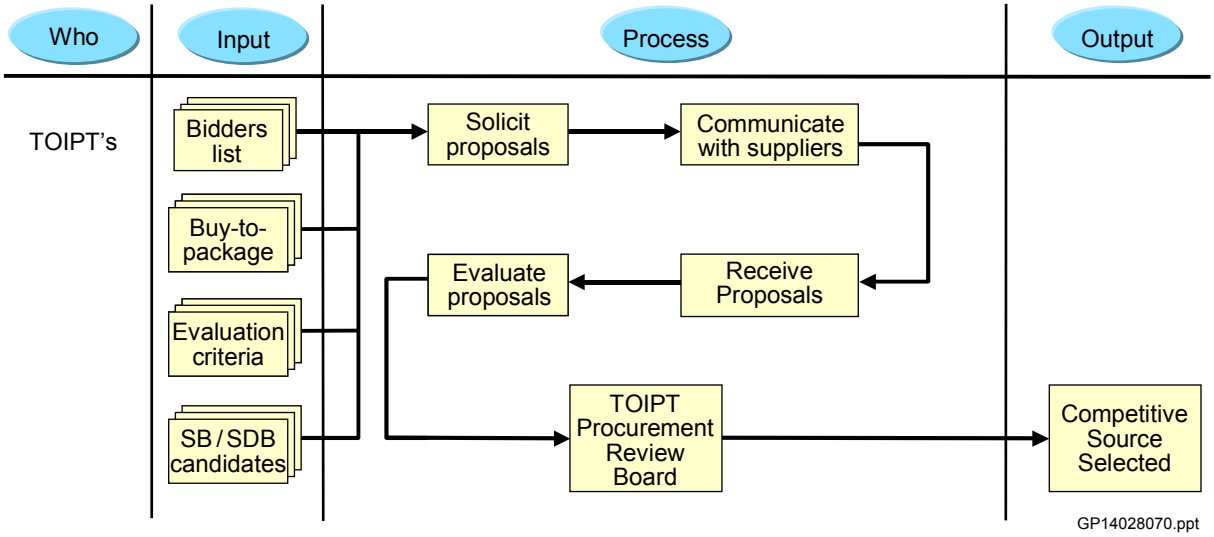
1.2.1 Selecting Subcontractors - Source selection is an IPT-managed process designed to yield best value based on a thorough evaluation of subcontractor's performance, capabilities, and risks in light of the detailed requirements contained in the Bid/Buy-To Package (B/BTP). The process is tailored to reduce cycle time in cases where subcontractors have been established through prior competition. The application and use of the Source Selection processes is described in, and governed by, G.O.P. 1.037; MPSP 6.115 and the *Supplier Management Source Selection Best Practice Manual*. The collaborative Bid/Buy-To Package Source Selection process enables the Boeing team to collaborate on the requirements definition, statement of work, data requirements and IMP/IMS during the formation of the Subcontractor Request for Proposal. It collaboration is accomplished by the establishment of the Task Order Management IPT (TOIPT) at the earliest identification of a Task Order opportunity. This significantly reduces the planned source selection cycle time for the most critical program components (Figure 1.2-1 below).

Figure 1.2-1. IPT Collaborative Source Selection Process for Teammates and 2nd-Tier Subcontractors



The standard competitive source selection process is used for the sub-tier subcontractors who are responsible for commodity or commonly available components, or services for which there are many suppliers. The process flow is described in Figure 1.2-2 below.

Figure 1.2-2. Sub-Tier Subcontractor Competitive Source Selection Process



Both source selection processes require the TO IPT to formulate a comprehensive Bid/Buy-To Package (B/BTP) and a subcontracting risk assessment and mitigation plan as part of the source selection evaluation criteria. This establishes the validated subcontractor program plan, schedule baseline, and risk plan that are used throughout the program.

Whether the collaborative or the competitive source selection process is used, the TOIPT deploys a source selection closure plan at the outset. The closure plan, depicted in Figure 1.2-3, identifies the major steps in the process, the person responsible for completion of that action and the estimated and actual completion dates.

Figure 1.2-3. Typical Source Selection Closure Plan

Action	RAA	Estimated Completion Date	Actual Completion Date
Procurement Spec/Drawing			
SSOW			
SRR			
SDRL			
Bidders Instructions(1)			
Proposal Letter			
RFI PRB/ Waiver			
RFI Package(1)			
Bid List PRB/Waiver			
Evaluation Team Formed			
Evaluation Criteria Complete			
RFPs to Suppliers(1)			
Subcontractor Proposal Response			
Proposals Evaluated			
Source Selection Award			

Note (1) Not Required for Collaborative Source Selection

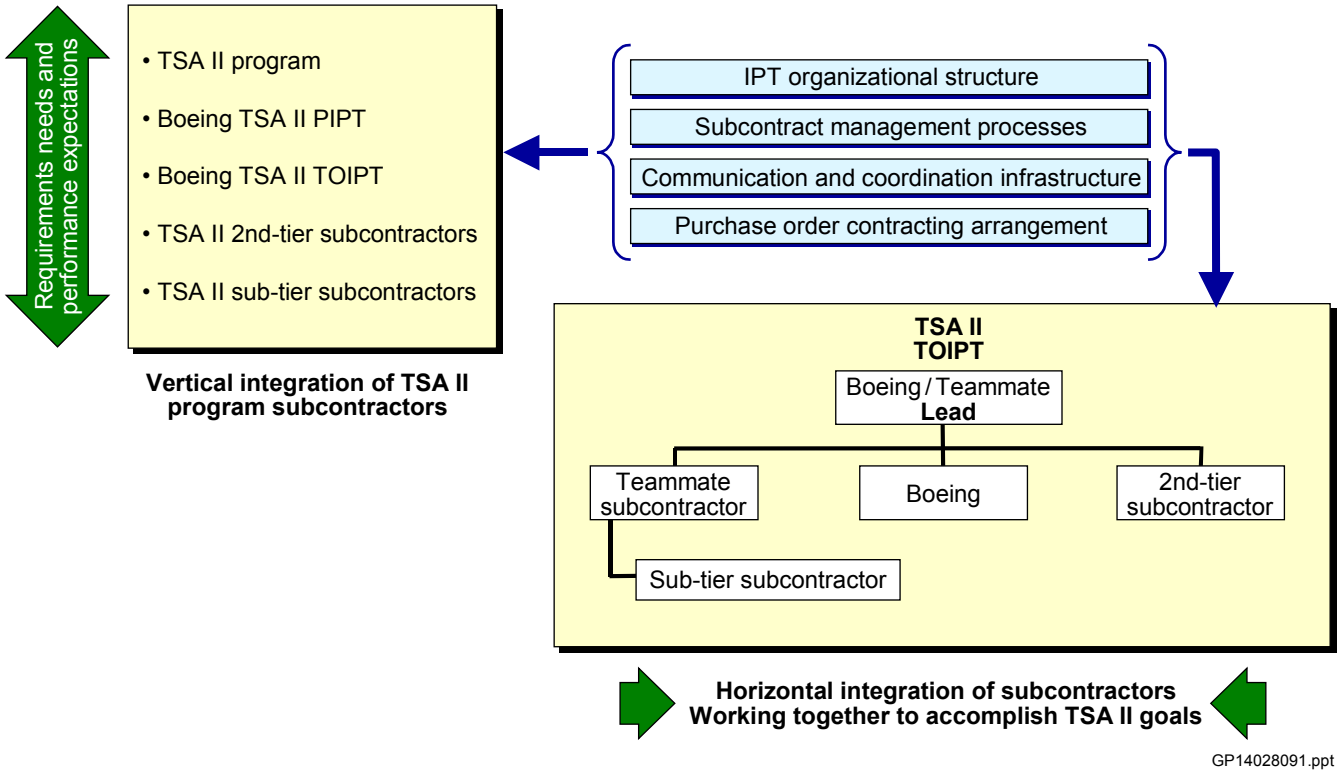
The closure plan assures that all of the source selection procedural steps are followed and that timelines are met, reducing the possibility of adverse schedule impacts that could increase subcontractor and program risk.

1.2.2 Coordinating With Subcontractors - Subcontractor coordination is the responsibility of the IPT organization. The TOIPT establishes a coordination framework for each Task Order that is dependent on the breadth (number of subcontractors involved) and depth (number of subcontractor reporting relationships) of the activity. Coordination begins with development of the subcontractor statement of work (SOW) in the B/BTP package during the proposal process. The subcontractor's SOW is coordinated with the TOIPT integrated master plan and integrated master schedule (IMP/IMS) during the request for proposal process. The resulting subcontractor plans and schedules are baselined during the finalization of the purchase order initiating the

formal, procedural coordination activity. The coordination process is documented in the TOIPT Subcontract Management Plan that is specific to each Task Order. The T IPT has a wide variety of coordination instruments, coordination channels and coordination techniques available to them. Coordination instruments include the Distributed Proposal System (DPS), Program Schedule, Cost and Quality data submittals, the Management Emphasis System (MES), the Supplier Delivery Follow-Up System (SDF), the Supplier Performance Measurement System (SPMS) and conventional, Excel-based Action Trackers. Coordination channels include e-mail, web-based Internet systems, and dedicated file servers. Coordination techniques include regularly scheduled program technical, managerial, and performance reviews, periodic cost and schedule update and reporting requirements, and "Red Flag" reports that subcontractors are required to submit should they encounter unforeseen difficulties that could materially affect cost, quality or schedule. Additional information regarding the formal coordination instruments and channels is presented in Section 1.0.5. *Lines of Communication With Subcontractors.*

1.2.3 Integrating Subcontractors - There are four drivers of subcontractor integration: the TOIPT organizational structure; established operating processes and procedures; the communications and coordination infrastructure; and Purchase Order contracts. Organizationally, the six Teammates have achieved full integration through the PIPT (Vol II, Section 1.04). The second tier and sub-tier subcontractors are integrated through the Task Order IPT (TOIPT) process described in Section 1.1 above. The TOIPT organizational structure provides a framework of operating processes and procedures, communication and coordination infrastructure, and Purchase Order contracts that complete the vertical integration into the overall TSA II Program and the horizontal integration into cohesive, high performing TOIPTs.

Figure 1.2-4. Vertical and Horizontal Integration of TSA II Subcontractors



Specific Subcontract Management processes and procedures are detailed in the *Boeing Subcontractor Management Best Practices Manual* (Boeing Report D950-10358-1, available under separate cover). The Purchase Order (PO) is a defining integration instrument because it establishes the contractual relationship between the Boeing Team and its subcontractors. The PO contains, among other things, general terms and conditions and special purchase order conditions (SPOC) that define reporting relationships, the precedence of requirements, and authority to change, amend or modify the contract. Specific details of the Purchase Order are addressed in Section 1.7.

1.2.4 Control of Subcontractors - The Boeing Team maintains subcontractor oversight and control from development through fabrication, assembly, test, installation and sustaining support of training services. This section describes the primary instruments used by the Boeing Team to manage subcontractors: Integrated Master Plans (IMP); Integrated Master Schedules (IMS); Technical Performance Metrics (TPM); a comprehensive risk management process; and a web-enabled infrastructure (discussed at length in Section 1.6) that provides project visibility and transparency to the TOIPT, the PIPT, and the Customer Program Offices.

Boeing's post-award subcontractor management process document (D950-10358-1) is the source for the processes, procedures and techniques used to successfully manage the TSA II Supply Chain. Effective

oversight and control are of specific interest to the reviewer and are the result of three primary components of the Subcontract Management Plan: (1) a fully validated subcontractor baseline development and production plan and schedule; (2) a full array of technical performance metrics supporting Earned Value Management; and (3) a comprehensive Risk Mitigation Plan. Each of these components are created for the individual subcontractor and are integrated into the overall TOIPT IMP/IMS and become a part of the daily and weekly working plan. Subcontractor Statements of Work (SSOW) include a Management Requirements (MR) section that identifies all program milestone reviews, meetings, tests, and data submittals in terms of content and timing. The MR establishes, at contract origin, the TOIPT's authority and the subcontractor's commitment to support the program management activities. Once these activities are integrated into the subcontractor and TOIPT IMP/IMS, they have visibility and are managed to completion. Performance metrics, in addition to reflecting subcontractor performance also, have predictive qualities that enhance TOIPT oversight. For example, actual staffing versus planned staffing has proven to be an effective predictor of success in engineering and software development programs. Measuring subcontractor staffing in terms of the number of peoples and the rate at which they populate the program gives the TOIPT an early, reliable indication of schedule and cost risk. The subcontractor risk mitigation plans, formulated during the source selection phase and matured as the program progresses, provide the TOIPT with a structured approach to identifying and resolving program risks before they adversely impact program performance.

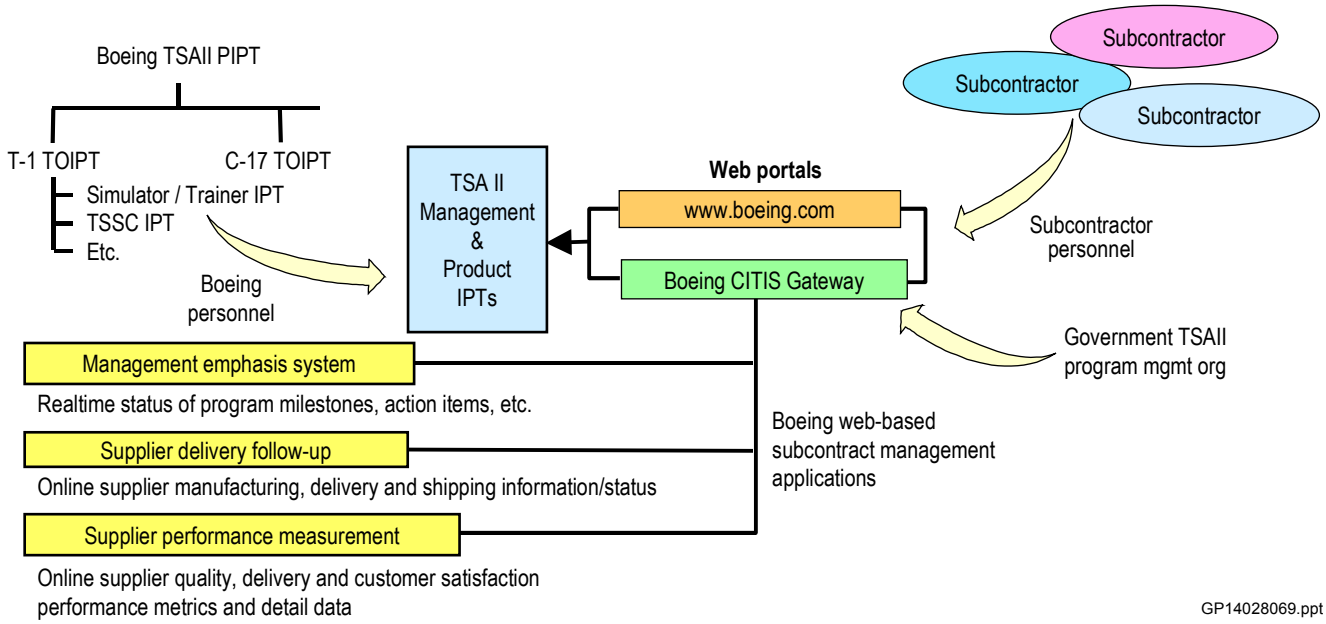
The TOIPT employs a variety of proven subcontractor management tools like the IMP/IMS, Earned Value Management, and Risk Management. The TOIPT structures purchase orders to assure physical oversight through programmed reviews, tests, milestones, data submittals and other on-site assessments. A full array of performance metrics offers the TOIPT and the TSA II Program Office the predictive indicators they need to gauge program progress and risk.

1.3 Lines of Communication and Authority with Subcontractors

1.3.1 Lines of Communication - TOIPT subcontractor communication is a network of personal, telephone, video and web-based systems that link the Boeing TOIPT, its subcontractor partners, and the TSA II Program Office to provide program visibility and transparency. The web-based network employs three systems (Figure 1.3-1). The Supplier Delivery Follow-Up System (SDF) enables the subcontractors to post up-to-date information on each deliverable's production and/or shipping status; the Supplier Performance Measurement System (SPMS) provides the stakeholders with monthly performance measures for quality, delivery, cost performance and customer satisfaction; and the Boeing Management Emphasis System (MES) is a primary

TOIPT communication tool for all program milestones, data items, action items, risk closure plans, corrective actions, and requests for changes. MES tracks and reports on all open, closed and pending action items and is being upgraded to provide e-mail notification of pending or past-due emphasis items. These three communication tools are accessed either through the CITIS link or the www.Boeing.com web site.

Figure 1.3-1. Boeing's Web-Based Communication
Our web-based information network assures Program transparency and visibility.



The web-based applications support weekly TOIPT teleconferences among the TOIPT and its subcontractors. The Task Order Subcontract Management Plan determines the frequency and content of information submittals for each Task Order, requiring the subcontractors to submit Earned Value cost and schedule reports, risk mitigation plan status and production and delivery line-of-balance status weekly.

The TOIPT organization facilitates daily communication and technical interface that does not materially affect the scope of the work. If work scope is affected, the TOIPT or the subcontractor uses the Requirements Change Proposal (RCP) or Contract Change Proposal (CCP) (Vol II, Section 1.1.4.102) to document and manage the change in scope. The TOIPT's ability to successfully partition communications that affect scope enables the team to maintain effective and continuous program communication. In addition to the daily communication, the TOIPT has established periodic on site reviews tied to critical program milestones or other events that give the TOIPT an opportunity to see first hand how things are progressing, to identify any emerging concerns or issues, and to promote team building.

1.3.2 Lines of Authority - As the prime contractor on TSA II, Boeing has full responsibility, accountability and authority (RAA) for successful completion of all TSA II Task Orders issued to The Boeing Company. Boeing's Purchase Order (PO) contractual arrangements with its Teammates clearly delineate Boeing's authority as prime contractor. Boeing invests the day-to-day TSA II Task Order authority through the PIPT to the TOIPT. Subcontractors designated as "leads" for a particular Task Order activity are "leads" in the sense that they are leading a *Boeing* IPT for that particular activity.

1.4 Subcontractor Problem Resolution

The TOIPT employs a process of problem resolution that is based on a Closed Loop Corrective Action (CLCA) system and the ability of the Management Emphasis System (MES) to track problem resolution management activities. If technical, schedule, cost or quality problems arise, the subcontractor is required to initiate a CLCA plan to resolve the problem and recover performance levels as quickly as possible. The subcontractor submits the CLCA plan through the MES, where it is updated and reviewed on a weekly basis. If problem resolution requires a change to the subcontractor's validated technical, schedule or managerial baseline, the subcontractor submits an RCP/CCP for evaluation and incorporation by the TOIPT.

Problem resolution is appropriate when problems relating not to change in baseline but to failure to follow the program plan are to be addressed. The subcontractor is required to submit to the Boeing Procurement Agent on the TOIPT a comprehensive recovery/corrective action plan within five days of the discovery of the condition. The recovery/corrective action plan is added to the MES agenda for weekly oversight and management until the problem is fully resolved.

All Boeing Team Purchase Orders contain a "disputes clause" that requires the subcontractor and Boeing to proceed toward successful contract completion while any disputes or problems are being resolved. This assures that the Boeing Team and its subcontractors protect program schedules should any internal problems or disputes arise.

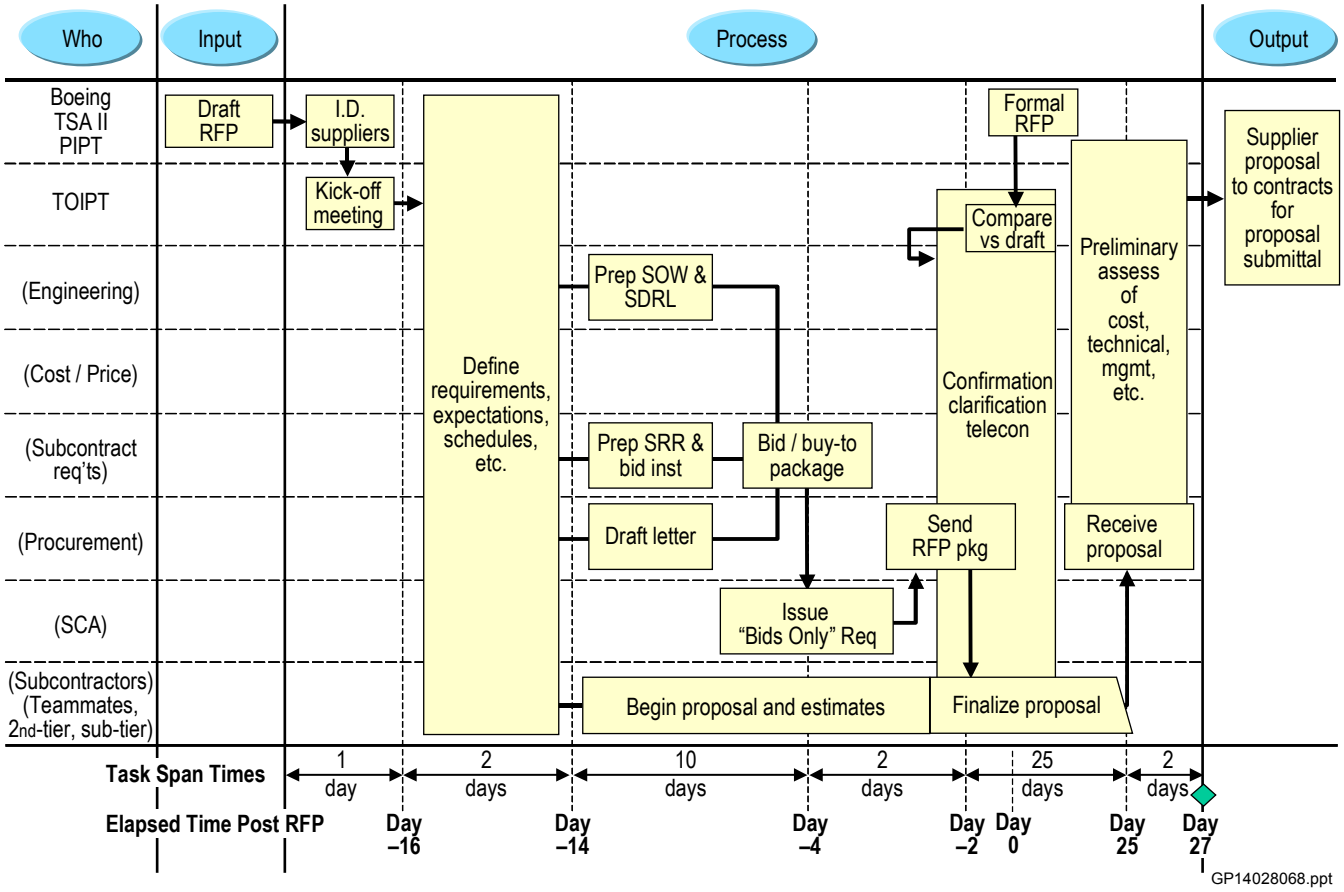
1.5 The Make/Buy Process

The Boeing TOIPT Make/Buy process is conducted at two levels. The strategic make/buy decisions are made during program initiation by the PIPT and reflect enterprise core competencies, strategic teaming and Small Business/Small Disadvantaged Business (SB/SDB)goals. The strategic make/buy decision for TSA II has resulted in the identification of the TSA II Teammates described in Section 1.1. The next strata of make/buy decisions are tactical or operational. These decisions are managed by the TOIPTs using the Boeing make/buy

processes identified in CPDPP 2.01 *Make-or-Buy Process*. This allows the TOIPT to mirror the strategic process with respect to special, targeted capabilities, SB/SDB goals, and considerations regarding capacity and workload/share balancing. The TOIPT leader assigns make/buy decision responsibility to a multi-disciplined product team (Vol II, Section 1.04, Figure 1.0-5) who collect all the necessary data regarding expected costs, risks, constraints and opportunities and create the business case.

If needed, the TOIPT creates an abbreviated B/BTP to send to potential subcontractors requesting information needed to establish the "buy" side of the business case. The make/buy business case and decisions are formally documented and implemented by the TOIPT. These approaches to make/buy ensure that the Boeing team has the flexibility to adjust team participation or workshare for the best combinations of capabilities capacities, and competency. The PIPT and TOIPT frameworks reduce cycle time for proposal preparation and submittal through the collaborative Bid/Buy-To Package (B/BTP) and proposal processes (Figure 1.5-1). This process enables Boeing to shorten the proposal cycle by eliminating many of the serial process steps through collaboration on product, process, and management requirements definition prior to issuance of the formal Subcontractor Request for Proposal (SRFP). While standard SRFP cycle time varies with the complexity of the task, Boeing's current experience with its Navy 2000 ID/IQ contracts suggests that this streamlining is successful in significantly reducing proposal cycle times for individual Task Order RFPs.

Figure 1.5-1. Subcontractor Task Order Proposal Process Cycle Time Reduction



1.6 Proposed Subcontractors with Their Specialties and Signed Agreements

Figures 1.6-1 and 1.6-2 list the capabilities (also see Vol II, Section 1.04), notional program roles and responsibilities and signed agreement s for the Teammates and the identified second tier subcontractors. Teaming Agreements, Proprietary Information Agreements and Memorandums of Agreement between Boeing and its subcontractors already exist and are included as Attachments A through C to this plan.

Figure 1.6-1. The Boeing Teammates

The Boeing Team's complementary mission capabilities provide the depth to meet the FRD-required services on multiple task orders simultaneously.

Company	Biography	Mission Capabilities Contribution
BOEING	• Large business headquartered in Seattle WA with Separate St. Louis based Training Services Group • Facilities at most CONUS USAF bases • ISO-9001 Certified/AS9100 Compliant/SEI Level 3 compliant • Largest ATS Supplier for all US Forces	• Aircrew Training Systems • Training Devices especially Tactical A/C • Contractor Logistics Support • PM/Systems Engineering • Concurrency Upgrades/Technology Insertion/Interoperability
ARINC	• Large business headquartered in Annapolis MD • Maintains facilities at all Air Force Air Logistic Centers and Product Centers and many major Air Force Bases. • Certified ISO-9001 /SEI Level 3 and 5	• Maintenance Training Devices • Training Systems Support • Design concept and prototype development • Qualification and Test
BLACKHAWK Management Corporation	• SDB, native American, women owned, 8(a) certified company headquartered in Houston TX • 12 CONUS locations • ISO 9001 compliant	• Supportability Analyses • Information Technology Services • Security • Network Operations
CSC	• Large business headquartered in El Segundo CA • More than 10,000 employees serving DOD and the intelligence community • Certified ISO 9001/SEI Level 3 and 5	• Courseware Development • TSRA & Training Effectiveness Evals • Courseware Formative and Summative Evals
FlightSafety international Simulation	• Large Business headquartered in Broken Arrow OK • Pioneering developer of FAA-certifiable, advanced simulation flight trainers • More different aircraft type simulators developed and FAA-qualified than any other company	• Aircrew Training Devices especially Large A/C FAA-qualified Devices • Visual Systems • Motion/Force Cueing Systems
SAIC	• Large business headquartered in San Diego CA • More than 41,000 employees at offices in more than 150 cities worldwide • ISO 9001 compliant/SEI Level 3 and 5 certified	• Constructive simulations • Mission debrief station • Design Concept and Prototype Devel • PM/Systems Engineering • Interoperability
THOMSON	• Large business headquartered in Tulsa OK • Backed by Thomson Training & Simulation, Ltd. Crawley UK • ISO-9002 registered company	• Aircrew Training Devices • Concurrency Upgrades especially Large A/C Sim Mods/Training Enhancement • Simulator Relocation • Qualification and Test

Figure 1.6-2. The Boeing Team Second Tier Subcontractors
A ready pool of committed Subcontractors facilitates rapid Task Order Proposal response.

Second Tier Subcontractor	Location	Core Expertise	Agreement(s) in Place
Teledyne Brown Engineering	Huntsville, AL	Simulation, tactical, Transport Training Systems & Weapons Simulation	Participation Agreement
ACS Defense	Alexandria, VA	Multi-media Training C-17 GBT, Interactive Training	Participation Agreement
American Systems Corporation	Chantilly, VA	Advanced Distributed Learning Products, Network Systems Design & Support	Participation Agreement
CACI	Lawton, OK	Please see Figure 4.2.1-1 for a full assessment of 2nd-tier Subcontractor capabilities	Participation Agreement
Dayton Aerospace	Beavercreek, OH	Please see Figure 4.2.1-1 for a full assessment of 2nd-tier Subcontractor capabilities	Participation Agreement
Eagle Systems	Lawton, OK	C-141 Simulator Hardware Engineering & Support	Participation Agreement
Evans & Sutherland	Salt Lake City, UT	Visual Display Systems, Image Generators, Database Modeling	Participation Agreement
Karta Technologies	San Antonio, TX	Boeing AUSS V Upgrades @ Tinker AFB	Participation Agreement
Manufacturing Technology Inc	Fort Walton Beach, FL	Design & Manufacture Simulation & Support Equipment	Participation Agreement
Mountain Leadership (Echota Technologies)	Maryville, TN	Computer-Based Interactive Training, Training Analysis	Participation Agreement
MultiGen-Paradigm	Dallas, TX	Run-Time Software and Large- Area Databases	Participation Agreement
NLX Corporation	Sterling, VA	E-8, RC-135 Flight Simulators, B-1B & F-16 Maintenance Simulators	Participation Agreement
Seyer Industries	St Peters, MO	Mechanical, Hydro-Mechanical and Electro-Mechanical Support Equipment	Participation Agreement
Star Media	Orlando, FL	Courseware Development, CBT and CAI Instruction	Participation Agreement

A common MOA and PIA covers all of the permutations of the PIPT subcontractor teaming relationships, so that individual MOA/PIAs are not created for each new Task Order or IPT organizational change. Boeing and its subcontractors required the TSA II Program Management Integrated Product Team (PIPT) to establish design approaches and proposal strategies and to assure successful TOIPT implementation and participation. The PIPT meets periodically to review overall progress and to address any emergent issues or opportunities. The PIPT is a forum for TSA II Program Office Customer participation, facilitating the full and open dialogue required to make sure that the Boeing Team's solutions are responsive, affordable and compliant to TSA II requirements.

The Boeing MOA Teaming Agreement enables the TOIPTs to be formed and reconstituted throughout the life of the TSA II program. The agreement provides for various permutations of "lead/follow" relationships at the TOIPT-level that anticipate situations where Boeing as the prime contracts with a subcontractor to lead a particular TOIPT (with personnel from other subcontractors and Boeing constituting the working members of

the TOIPT). These agreements enable Boeing to retain its responsibility, accountability and authority (RAA) for the overall effort (Section 1.7) while empowering the TOIPT to employ people and resources from across the entire Boeing Team to achieve a successful outcome. In addition, Boeing has established mechanisms to allow each participating subcontractor to recover costs and profits while preventing a "pyramiding" of profits through the supply chain. This is important in keeping costs at a minimum for TSA Task Orders.

1.7 Subcontractor Quality Assurance Requirements

Subcontractor quality assurance is instituted through Boeing Subcontractor Quality Surveys prior to source selection and award, and contractual quality requirements invoked by the Purchase Order (PO) contract. The Boeing Subcontractor Quality Surveys are performed prior to PO award to make sure that the supplier has a quality system that is capable and mature enough to assure process compliance in development, design, software development, fabrication, assembly, integration and test. The results of the survey are used to first determine a subcontractor's eligibility to be in the source selection process and later to evaluate potential risks and identify subcontractor processes that require Boeing Process Validation Assessments (PVA). PVAs are thorough assessments of critical subcontractor processes and are designed to identify strengths, weaknesses and specific process improvements. Boeing's overall subcontractor quality performance has risen steadily during the transformation from source inspection to the PVA process, as shown in Figure 1.7-1.

The contractual quality requirements originate with the prime contract. Requirements that require flowdown to the subcontractors are included in the SSOW and the PO. In addition to the Prime requirements, the TOIPT develops product specific key characteristics or parameters that become the basis of the acceptance criteria. Subcontractor development and acceptance test procedures and plans and data requirements are instituted to assure compliance with key dimensional or operational characteristics. These requirements are contained in the subcontractor SOW and in data items contained in the Subcontractor Data Requirements List (SDRL). The quality requirements are levied and enforced through the Purchase Order contract. They are managed by the TOIPT through the PVA process and through the hierarchy of development, production and acceptance test plans.

Figure 1.7-1. Boeing's Transition from Source Inspection to PVA Correlates to Improved Subcontractor Quality Performance